# Lab 03 Filter Interface (20 pts)

## Learning Goals:

* Get practice using Interfaces
* Create a predicate based interface
* Create a call back interface

## Lab Directions:

1. Create an IntelliJ project called Interfaces. All of your code will be in this project.

Add your project to GitHub source control.

1. Create an interface Filter as follows:

public interface Filter

{

boolean accept(Object x);

}

1. Write a method to use in your main program: collectAll(…)

That returns all objects in the objects array that are accepted by the given filter. You will use this for the program that follow. You can copy this method into the main file of each of your programs below or place it in a static class file and use it from there with this: MYCLASSFILENAME.collectAll(…)

Program 1:  
Provide a class ShortWordFilter which implements the Filter interface whose accept method accepts all strings of length < 5.

Then write a java main program **ShortLister.java** that lets the user pick a text file (JFileChooser) which uses the filter to display the short words from the file.

Program 2:Provide a class BigRectangleFilter which implements the Filter interface whose accept method accepts all java Rectangle objects that have a perimeter > 10.

Then write a program **BigRectLister.java** that creates an ArrayList of 10 Rectangles making sure that you have several that are under and several that are over a perimeter of 10. Use the collectAll method as before to list the rectangles that have big perimeters.

As always take screen shots of your output to show that your programs run correctly. Paste them at the end of this document. Make sure it is clear from the screen shots that your filter worked correctly.

## Submission:

Save this file with your required screen shots as **Lastname\_Firstname\_Lab03.docx using you name**. Submit it.

Submit the GitHub link(s) for your project source.

GitHub Link: https://github.com/joseph-berger/Interface

* ShortLister Choosing File: A screenshot of a computer

  Description automatically generated
* ShortLister Test File: A screenshot of a computer

  Description automatically generated
* ShortLister Displaying Working Filter: A screen shot of a computer

  Description automatically generated
* Proof 10 Rectangles in Code: A screenshot of a computer program

  Description automatically generated
* Rectangle Output: A screenshot of a computer program

  Description automatically generated